APPENDIX I: CALCULATING A PROXIMITY FACTOR

Introduction: The importance of proximity between the impact and mitigation sites will vary with the individual wetland function being considered. Simple arithmetic is deceptive in determining replacement of wetland functions. Replacement is not a single matter of equivalency. It depends upon the context. While a mitigation bank proposal may numerically compensate for the loss of a given wetland function, different components of the broader ecological system would be benefited and different landowners and segments of the population would be benefited and burdened. Therefore, the destruction of wetland functions and their replacement at other sites need to be assessed in the hydrologic and ecological context. The following is an example of a method to calculate a proximity factor (multiplier). Other methods to calculate a proximity factor may be considered by the MBRT.

The usual suite of wetland functions were lumped into two broad categories which were used to determine common quantifiable variables directly affecting the ability of a mitigation bank to provide successful ecological replacement for lost wetland functions. These two categories are habitat and hydrology. Functions were categorized by considering if they were only applicable within the watershed of the impact site being impacted. With the exception of wildlife habitat support for some species, most functions are best offset within the same watershed. Therefore, no proximity factor is applied to impacts within the same 8-digit HUC as the mitigation bank. However, the MBRT recognized that the relevance of a mitigation effort is diminished as the primary watersheds of the mitigation site and impact site become further removed. Diminishing relevance expresses the relationship of the mitigation bank service area and how it relates to the impact site. We also need to compensate for the relative importance of these functions to the watersheds of the impact site and the mitigation bank. To do this, the proportion of functions performed in the watershed of the impact site is compared to the sum of the amount of functions available in both the impact site and mitigation bank watersheds. A simple way to numerically score this concept is to proportionally relate the area of the impact site watershed to the total area of both watersheds.

Out-of-basin: The MBRT discourages mitigation outside of the basin (Figure 1). However, this will be considered by the regulatory agencies on a case-by-case basis for situations such as; linear projects, projects in close proximity to the basin line, situations where there is no ecologically preferable alternative, etc. In the event out-of-basin mitigation is allowed, the proximity factor will be subject to an additional multiplier of 1.5 to compensate for the diminished relevance of hydrologic function compensation.

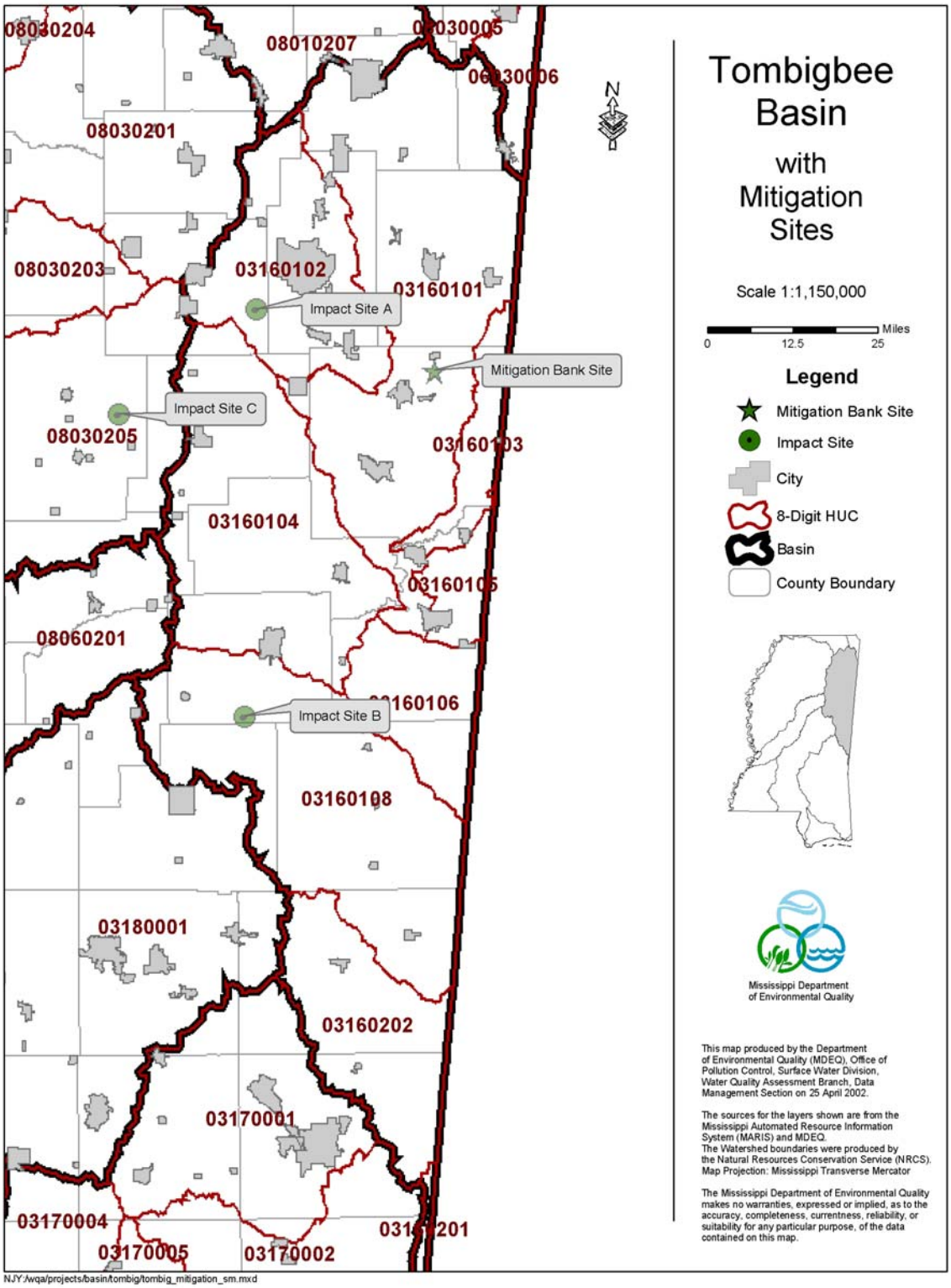
Methodology:

$$Px = \sqrt{(\#HUCS) + \frac{IA}{\frac{IA + BA}{2}}}$$

Where:

Px = The proximity factor (multiplier) [2 decimal places]
#HUCS = The number of 8-digit HUC watersheds contacting a line between the impact site and the bank site's HUC (See attached)

IA = The area of the 8-digit HUC in which the impact site is located (see Table 1)
BA = The area of the 8-digit HUC in which the mitigation bank is located (see Table 1)



Example #1:

Impact Site A is in the 03160102 HUC. The mitigation bank is in the 03160101 HUC.

From Table 1:
#HUCS = 1
IA = 439430.07
BA = 1061534.36

$$Px = \sqrt{(1) + \frac{439430.07}{\frac{439430.07 + 1061534.36}{2}}}$$

$Px = 1.07$

Example #2

Impact Site B is in the 03160108 HUC.

#HUCS = 2
IA = 819569.61
BA = 1061534.36

Px = 1.49

Example #3

Impact Site C is in the 08030205 HUC
#HUCS = 2
IA = 1471858.68
BA = 1061534.36

Px = 1.51

Out-of-Basin Multiplier = 1.5

Total = 1.51 x 1.5 = 2.27

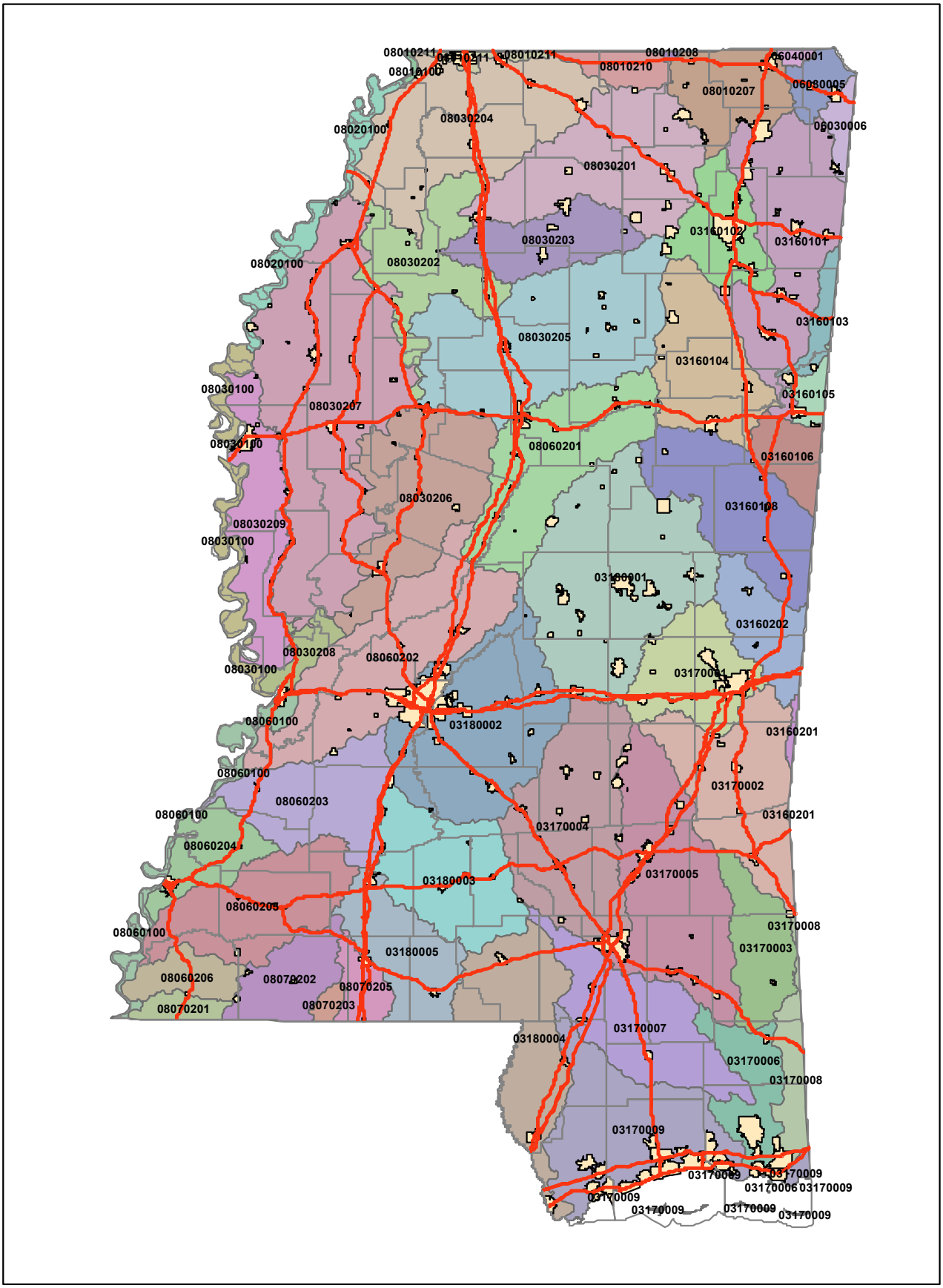
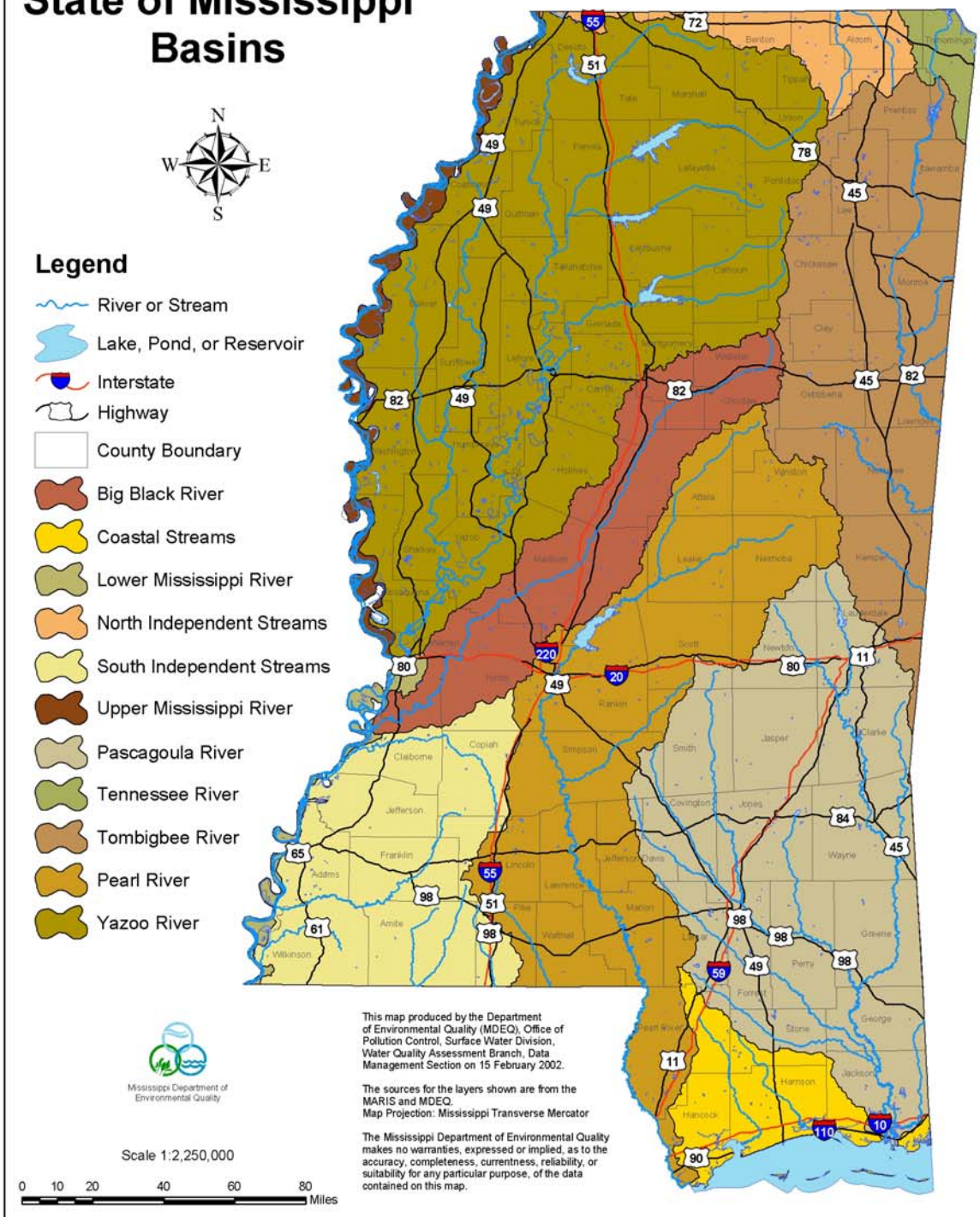

08010211
08010211
08010211
08010208
08010100
08010210
08040001
08010207
08080005
08020100
08030204
08030006
08030201
08030203
03160102
03160101
08020100
08030202
03160103
08030205
03160104
08030100
03160105
08030207
08030100
08060201
03160106
08030206
03160108
08030209
08030100
03160001
03160202
08030208
08060202
08030100
03170001
08060100
03180002
03160201
08060100
03170002
08060203
08060100
03170004
03160201
08060204
03170005
03180003
08060205
03170008
08060100
03170003
03180005
08060206
08070202
08070205
08070201
08070203
03170007
03180004
03170006
03170008
03170009
03170009
03170009
03170006
03170009
03170009
03170009
03170009

Table 1. Mississippi 8-Digit Hydrologic Unit Code (HUC) Area in Acres

HUC	SUM_ACRES
03160101	1061534.3600
03160102	439430.0700
03160103	127879.7900
03160104	716016.8100
03160105	91152.9300
03160106	230304.0300
03160108	819569.6100
03160201	22610.2600
03160202	380269.2400
03170001	580537.0100
03170002	884603.9900
03170003	425303.2800
03170004	1121090.5200
03170005	1167114.0900
03170006	388373.3600
03170007	811268.8600
03170008	219759.5100
03170009	1049864.2100
03180001	1574422.9300
03180002	1267270.9000
03180003	783769.4100
03180004	818430.3400
03180005	537812.6800
06030005	151161.5000
06030006	93559.3400
06040001	24441.7400
08010100	13232.9000
08010207	461093.3000
08010208	8565.2800
08010210	157773.4200
08010211	53925.7900
08020100	252347.7200
08030100	270773.2200
08030201	1055696.4000
08030202	646591.7100
08030203	482034.3800
08030204	1231632.4500
08030205	1471858.6800
08030206	985323.6700
08030207	2021408.6200
08030208	136517.2100
08030209	589554.7900
08060100	235018.7600
08060201	945809.4400
08060202	1217227.5100
08060203	688519.7600
08060204	343635.7300
08060205	783742.9000
08060206	222406.8200
08070201	106588.9800
08070202	371076.7700
08070203	43167.4100
08070205	166115.2300

State of Mississippi Basins



This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division, Water Quality Assessment Branch, Data Management Section on 15 February 2002.

The sources for the layers shown are from the MARIS and MDEQ.
Map Projection: Mississippi Transverse Mercator

The Mississippi Department of Environmental Quality makes no warranties, expressed or implied, as to the accuracy, completeness, currentness, reliability, or suitability for any particular purpose, of the data contained on this map.

NJY:/wqa/projects/statewide/basins.mxd